

# Configuring L2MPLS

## INFO

1.set mac actions should not be added before push\_l2mpls

## PUSH L2 MPLS

### Pushing an L2 MPLS with one label:

```
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=17,ip,dl_vlan=11,actions=push_l2mpls:0x8847,set_field:22:11:11:11:11:10->dl_dst,set_field:22:00:00:00:00:01->dl_src,set_field:16->mpls_label,output:18"
```

### Pushing an L2MPLS with two labels:

```
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=17,ip,dl_vlan=11,actions=push_l2mpls:0x8847,set_field:22:11:11:11:11:10->dl_dst,set_field:22:00:00:00:00:01->dl_src,set_field:20->mpls_label,push_mpls:0x8847,set_field:16->mpls_label,output:18"
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=17,dl_type=0x8847,dl_vlan=11,actions=push_mpls:0x8847,set_field:22:00:00:00:00:01->dl_dst,set_field:22:11:11:11:11:10->dl_src,set_field:20->mpls_label,output:18"
```

## SWAP L2 MPLS Label

In the following configuration example, specify a flow which has two labels, and in this situation user wants to swap the outer label. The output flow is L2MPLS packet with outer label 30 and inner label 20.

```
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=18,dl_type=0x8847,dl_dst=22:00:00:00:00:01,dl_vlan=11,mpls_label=16,mpls_label2=20,actions=set_field:30->mpls_label,output:17"
```

## POP L2MPLS Label

### Popping an MPLS Label of the flow:

```
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=17,dl_vlan=11,dl_dst=22:00:00:00:00:01,mpls,mpls_label=16,actions=pop_l2mpls,output:18"
```

### Popping one MPLS label for flows with two MPLS labels:

Two labels then pop one outer label.

```
root@PicOS-OVS$ovs-ofctl add-flow br0 "in_port=17,dl_vlan=11,dl_dst=22:00:00:00:00:01,mpls,mpls_label=16,mpls_label2=20,actions=pop_mpls:0x8847,output:18"
```

### Popping two MPLS labels for flows with two MPLS labels

In the following configuration, specify a flow which has two labels to pop. The output flow is IP packet. Configure two pop entries to pop the flow.

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=17,dl_vlan=11,dl_dst=22:00:00:00:00:01,mpls,mpls_label=16,mpls_label2=30,actions=pop_l2mpls,output:18"
```

## PUSH L2MPLS Label and VLAN

### Pushing one L2MPLS label and one VLAN:

In the following configuration, specify flows to push one L2MPLS label and one VLAN.

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=17,ip,actions=push_l2mpls:0x8847,set_field:22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:16->mpls_label,push_vlan:0x8100,set_field:11->vlan_vid,output:18"
root@PicOS-OVS#ovs-ofctl add-flow br0 in_port=2,dl_type=0x8847,dl_vlan=2999,dl_dst=22:22:22:22:22:22,
mpls_label=66,actions=push_mpls:0x8847,set_field:333->mpls_label,push_vlan:0x8100,set_field:1999->vlan_vid,
output:4
```

### Pushing two L2MPLS Labels and one VLAN:

In the following configuration, specify flows to push two MPLS labels and one VLAN.

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=17,ip,actions=push_l2mpls:0x8847,set_field:22:11:11:11:11:10->dl_dst,set_field:22:00:00:00:00:01->dl_src,set_field:20->mpls_label,push_mpls:0x8847,set_field:16->mpls_label,
push_vlan:0x8100,set_field:11->vlan_vid,output:18"
```

## Pushing One MPLS Label and Pop One VLAN

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=18,dl_type=0x8847,mpls_label=30,dl_dst=22:22:22:22:22:22,
dl_src=44:44:44:22:22:22,dl_vlan=11,actions=push_mpls:0x8847,set_field:20->mpls_label,pop_vlan,output:17"
```

## Pushing One L2MPLS Label and Pop One VLAN

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=18,dl_vlan=100,actions=push_L2mpls:0x8847,set_field:22:22:22:22:
22:22->dl_dst,set_field:44:44:44:44:44:44->dl_src,set_field:20->mpls_label,pop_vlan,output:17"
```

## Pushing Two L2MPLS Headers

```
root@PicOS-OVS#ovs-ofctl add-flow br0 "in_port=18,dl_type=0x8847,actions=push_l2mpls:0x8847,set_field:22:00:00:
00:00:01->dl_dst,set_field:22:11:11:11:11:10->dl_src,set_field:20->mpls_label,output:17"
```

## Configuring Inner VLAN

### Push L2MPLS, push one inner VLAN:

```
ovs-ofctl add-flow br0 "in_port=17,ip,actions=push_vlan:0x8100,set_field:8->vlan_vid,push_l2mpls:0x8847,
set_field:22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:1000->mpls_label,push_vlan:
0x8100,set_field:13->vlan_vid,output:18"

ovs-ofctl add-flow br0 "in_port=17,dl_vlan=2,ip,actions=push_vlan:0x8100,set_field:8->vlan_vid,push_l2mpls:
0x8847,set_mpls_ttl:64,set_field:22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:1000-
>mpls_label,push_vlan:0x8100,set_field:11->vlan_vid,output:18"
```

### Push L2MPLS, modify inner VLAN:

```
ovs-ofctl add-flow br0 "in_port=17,ip,actions=set_field:8->vlan_vid,push_l2mpls:0x8847,set_mpls_ttl:64,
set_field:22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:1000->mpls_label,push_vlan:
0x8100,set_field:11->vlan_vid,output:18"
```

```
ovs-ofctl add-flow br0 "in_port=17,dl_vlan=2,ip,actions=set_field:8->vlan_vid,push_l2mpls:0x8847,set_mpls_ttl:
64,set_field:22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:1000->mpls_label,push_vlan:
0x8100,set_field:11->vlan_vid,output:18"
```

#### Push L2MPLS, pop inner VLAN:

```
ovs-ofctl add-flow br0 "in_port=17,dl_vlan=2,ip,actions=pop_vlan,push_l2mpls:0x8847,set_mpls_ttl:64,set_field:
22:22:22:22:22:22->dl_dst,set_field:22:00:00:00:00:00->dl_src,set_field:1000->mpls_label,push_vlan:0x8100,
set_field:11->vlan_vid,output:18"
```

#### Pop inner VLAN after pop L2MPLS:

```
ovs-ofctl add-flow br0 "in_port=17,dl_vlan=11,dl_dst=22:22:22:22:22:22,mpls,mpls_label=1000,actions=pop_l2mpls,
pop_vlan,output:1"
```

#### Modify inner VLAN after popping L2MPLS:

```
ovs-ofctl add-flow br0 "in_port=18,dl_vlan=11,dl_dst=22:22:22:22:22:22,mpls,mpls_label=16,mpls_label2=20,
actions=pop_l2mpls,push_vlan:0x8100,set_field:100->vlan_vid,output:17"
```



The L2MPLS packet must encapsulate outer VLAN and not be PVID, the original packets must encapsulate the VLAN tag.

#### Push inner VLAN after popping L2MPLS:

```
ovs-ofctl add-flow br0
"in_port=17,dl_vlan=11,dl_dst=22:22:22:22:22:22,mpls,mpls_label=1000,actions=pop_l2mpls,push_vlan:0x8100,
set_field:100->vlan_vid,output:18"
```



The L2MPLS packet must encapsulate outer VLAN and not be PVID, the original packets shouldn't encapsulate VLAN tag.